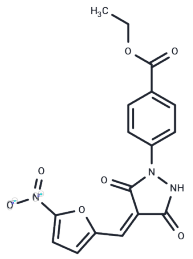
Data Sheet (Cat.No.T6629)

PYR-41

Chemical Properties



CAS No. : 418805-02-4

Formula: C17H13N3O7

Molecular Weight: 371.3

Storage: Powder: -20°C for 3 years | In solvent: -80°C for 1 year
Actual storage temperature shall be subject to the COA.

Biological Description

Description	PYR-41 is the first cell-permeable inhibitor of ubiquitin-activating enzyme E1, with no activity at E2.
Targets(IC50)	Apoptosis,E1/E2/E3 Enzyme
In vitro	PYR-41 (50 μM) inhibits activity of ubiquitin-activating enzyme E1 by over 90%. PYR-41 could be a target for nucleophilic attack and potentially reacts with the active site cysteine of E1. PYR-41 efficiently blocks cyclin E degradation. PYR-41 decreases the level of E1fUb thioesters in cells with a IC50 of between 10 and 25 μM, and prevents proteasome inhibitor-induced accumulation of ubiquitylated proteins. PYR-41 increases total sumoylation in cells and in cell harboring temperature-sensitive E1. PYR-41 is able to inhibit both proteasome-dependent and proteasome-independent activities of ubiquitylation. PYR-41 (50 μM) attenuates 1 ng/mL IL-1α-mediated nuclear factor-κB activation by >60% through preventing the downstream ubiquitylation and proteasomal degradation of IκBα. PYR-41 inhibits degradation of p53 and activates the transcriptional activity of p53, which enable its differentially killing transformed p53-expressing cells. [1] PYR-41 blocks ubiquitination reactions but paradoxically leads to the accumulation of high MW ubiquitinated proteins. PYR-41 also has equal or greater inhibitory activity against several deubiquitinases (DUBs) in intact cells and purified USP5 in vitro. PYR-41 also mediates cross-linking of specific protein kinases (Bcr-Abl, Jak2) to inhibit their signaling activity. [1]
Kinase Assay	Rabbit or mouse E1 (apper 250 ng) is incubated with 32P-ubiquitin in 1× reaction buffer [50 mM Tris (pH 7.4), 0.2 mM ATP, 0.5 mM MgCl2] at room temperature for 15 min. In some experiments, the His-tagged mouse E1 is bound to TALON cobalt affinity resin before carrying out incubations and reactions. Mouse E1 and 32P-ubiquitin are added to the beads in 1× reaction buffer and incubated as for E1 reactions. Samples are heated in nonreducing SDS-PAGE sample buffer and resolved by SDS-PAGE. Thioesters with ubiquitin are visualized by Storm PhosphoImager.

Solubility Information

Solubility	DMSO: 5.5 mg/mL (14.81 mM),Sonication is recommended. (< 1 mg/ml refers to the product slightly soluble or insoluble)

In vivo Formulation	10% DMSO+40% PEG300+5% Tween 80+45% Saline: 1 mg/mL (2.69 mM),Sonication is recommended. *Please add the solvents sequentially, clarifying the solution as much as possible before adding the next one. Dissolve by heating and/or sonication if necessary. Working solution is recommended to be prepared and used immediately. The formulation provided above is for reference purposes only. In vivo formulations may vary and should be modified based on specific experimental conditions.*

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	2.6932 mL	13.4662 mL	26.9324 mL
5 mM	0.5386 mL	2.6932 mL	5.3865 mL
10 mM	0.2693 mL	1.3466 mL	2.6932 mL
50 mM	0.0539 mL	0.2693 mL	0.5386 mL

Please select the appropriate solvent to prepare the stock solution, according to the solubility of the product in different solvents. Please use it as soon as possible.

Note: The dilution table applies only to solid products. For liquid products, please calculate the stock solution based on the stated concentration and/or density.

Reference

Yang Y, et al. Cancer Res, 2007, 67(19), 9472-9481.
Kosmider O, Possémé C, Templé M, et al.VEXAS syndrome is characterized by inflammasome activation and monocyte dysregulation.Nature Communications.2024, 15(1): 910.
Qiu Q, He Z, Liu J, et al.Homeobox protein MSX-1 restricts hepatitis B virus by promoting ubiquitin-independent proteasomal degradation of HBx protein.PLoS pathogens.2025, 21(1): e1012897.
Kapuria V, et al. Biochem Pharmacol, 2011, 82(4), 341-349.

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